REMARKS

Claims 1-3, 5-7, 9, 10, 12-17, 19-22 and 24-26 are pending in the present application, claim 26 having been added herein. The Office Action and cited references have been considered. Favorable reconsideration is respectfully requested.

Claim Amendments

Support for the claim amendments are shown in bold in the following annotated version of claims 1 and 26:

1. A method of handling ATM traffic comprising one or more Virtual Path Connections (VPCs) being streams of packets of AAL5 type composed of ATM cells, ~~at a network node at VP-layer~~, the method comprising handling said traffic at a network node at VP-layer being the layer of VPCs ***(page 15, lines 8-9)***, wherein said node being initially unaware about type of VC services inside a Virtual Path Connection VPC ***(page 2, lines 22-23)***;
the method including :
- providing a database,
- monitoring each of said cells incoming the node and determining at least VC-layer and VP-layer parameters of a cell being monitored,
- processing information on said determined parameters,
- registering the processed information concerning each of said cells in the database,
- by using the registered information, forming statistical data with respect to at least combinations of the VC-layer and VP-layer parameters of the packets being handled at the node, so as to make the network node, handling the ATM traffic at VP-layer, aware about nature and behavior of various AAL5 streams in a particular VP connection,
- analyzing the statistical data,
- performing an AAL5 packet discard policy at the VP layer by making decisions on ~~possible~~ discard of the cells being monitored, said decisions depending on results of analysis of the statistical data, thereby taking into account frequency of appearance, in the data base, of a combination of VC-layer and VP-layer parameters of a particular cell being monitored ***(page 11, lines 15-23)***.

26. A method of handling, at a Digital Subscriber Line Access Multiplexer (DSLAM), AAL5 traffic streams at VP layer comprising multiplexed Virtual Path connections VPCs, wherein each VPC comprises interleaved cells of VC connections unknown to the DSLAM at the VP layer ***(page 15, lines 7-13, page 2 lines 19-25)***,

the method comprising

continuous monitoring of the interleaved cells incoming the DSLAM, ***(page 15, lines 24-27)***

determining the belonging of each of the monitored cells to a particular VCC and VPC, and status of the cell in a packet ***(page 15, lines 24-27****, page 16 lines 1-2)*

registering data on the determined belonging and status in a statistic database of the DSLAM **(*original claims*, *page 16 line 3-page 17 line 19*)**,

performing discard of the cells by applying an AAL5 packet discard policy at the VP layer while utilizing the data registered in the statistic database. ***(page 11, lines 15-19)***.

Claim Rejections under 35 U.S.C. §103

Claims 1-3, 6, 7, 9, 12-17, 19-22, 24 and 25 were objected to and rejected under 35 U.S.C. §102 (b) as being anticipated by Nattkemper et al (U.S. Patent No. 5,999,518). Claims 5 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nattkemper et al (US Patent 5,999,518) in view of Chiu et al (US Patent 6,597,689). These rejections are respectfully traversed for the following reasons.

Claim 1 recites a method of handling ATM traffic comprising one or more Virtual Path Connections (VPCs) being streams of packets of AAL5 type composed of ATM cells, the method comprising handling said traffic at a network node at VP-layer being the layer of VPCs, wherein the node is initially unaware about type of VC services

inside a Virtual Path Connection VPC. The method includes providing a database, monitoring each of the cells incoming the node and determining at least VC-layer and VP-layer parameters of a cell being monitored, processing information on the determined parameters, registering the processed information concerning each of the cells in the database, by using the registered information, forming statistical data with respect to at least combinations of the VC-layer and VP-layer parameters of the packets being handled at the node, so as to make the network node, handling the ATM traffic at VP-layer, aware about nature and behavior of various AAL5 streams in a particular VP connection, and analyzing the statistical data, performing packet discard at the VP layer by making decisions on possible discard of the cells being monitored, the decisions depending on results of analysis of the statistical data, thereby taking into account frequency of appearance, in the database, of a combination of VC-layer and VP-layer parameters of a particular cell being monitored. This is not taught, disclosed or made obvious by the prior art of record.

In his Response to Arguments (page 2, second paragraph of the Detailed Action), the Examiner refers to col. 33 and 34 of Nattkemper as proof that Nattkemper performs "not only cell-based" discard at VP layer.

Applicant is quite happy that the Examiner cited the Nattkemper's col. 34, since it comprises very clear statements which demonstrate that Applicant's arguments are correct, while the Examiner's point of view is erroneous.

Specifically, in col. 34, lines 10-20, Nattkemper admits the following:

> "VP connections consist of unknown VCs and provide a statistically multiplexed traffic stream that remains within

> some bandwidth limits"; (col. 34, lines 10-12, emphasis added);

"It is reasonable to discard cells, if the VP stream (with unknown VCs) exceeds its bandwidth limit" (col. 34, lines 12-13, emphasis and brackets added);

All the above, indeed, is said about VP layer, but what does Nattkemper say? Nattkemper recommends that if the total bandwidth for a VP stream (with unknown VCs) is exceeded, cells are discarded. That is exactly what Applicants say - at the VP layer nothing is known about VCs and thus the discard is cell-based and totally blind with respect to VCs since it depends just on limit of VP.

Further, Nattkemper says in the same in col.34:

> Only per VC basis, in the VC-case [lines 13-14], the system [supporting both VC and VC connections - see lines 5-6] may be provisioned with the AALx attribute when the PVC connection is established [*i.e., when the specific VC becomes known, = i.e., in that specific VC case*!] (Emphasis and brackets added.)

Therefore, only the AAL5 (or similar) encoded streams are candidates for the EPD and PPD discard strategy.

All the above is said about the VC layer. The intelligent packet discard strategies are mentioned only for the known/established VC connection = at the VC layer!

In other words, the description of col. 34 confirms Applicant's argument that Nattkemper is able to perform EPD and PPD discard strategy only at VC layer ("in the VC case", "per VC basis", "when PVC connection is established") and for AAL5

encoded streams. In the case of a VP stream with unknown VCs, - the cell level (*i.e.*, blind) discard is used by Nattkemper.

To emphasize the main differences between Nattkemper and the present invention, Applicant has amended claim 1 and introduced a new claim 26. To distinguish the invention from the limitations which preclude using EPD, PPD discard at the VP layer in Nattkempler's solution, Applicant claims performing the discussed EPD/PPD discard strategy (*i.e.*, AAL5 discard policy in Applicant's description) at the VP layer.

The VP layer is, as is mentioned in the original description can be understood in the ways discussed in Applicant's specification, for example:

- a VP connection (page 2, line 19 of the original description), or

- a plurality of VP connections (page 15, lines 7-9), or

- an aggregation of various services in the form of a mixture of AAL5 packets (page 2, line 20), or

- unknown to the DSLAM, VC services inside the VP layer (page 2, lines 22-23).

In the amended Claim 1 and in the new Claim 26, Applicant emphasizes applying an AAL5 discard policy for AAL5 packets at the VP layer which intrinsically comprises unknown, multiplexed VCs. Literal support for the amendment can be found in the original description (marked in the attached claims 1 and 26, at the end of this letter).

Further in the "Response to Arguments", the Examiner cited column 25 lines 27-31 of Nattkemper and contended that Nattkemper does mention, together, a VC-descriptor and a VP-descriptor.

However, lines 27-31 of col. 25 speak about ***signaling*** cells, at VC layer, for establishing a connection. One of ordinary skill in the art would understand that ***signaling*** cells are not traffic cells and belong to an absolutely different type of communication. In the present invention, Applicant discusses traffic cells only, and Applicant's claims refer to ATM traffic streams.

It should also be noted that, for establishing a connection, VC descriptors should be known in advance.

Further, obtaining a VP descriptor, mentioned in col. 25, line 30, relates to an egress stream, while a VC descriptor relates to an absolutely different, ingress stream.

Finally, the "combination" of VC and VP descriptors, meant by the Examiner to appear in one database of Nattkemper, does not have anything in common with our feature of building a statistics data base for clever discarding packets at VP-layer comprising unknown VCs. Nattkemper means an absolutely different subject - signaling for establishing a connection at VC-layer, wherein the VC descriptor is known.

Please note again, that Nattkemper always speaks about KNOWN VC connections (end of column 10, for example). If there is VC-descriptor in the text, the meaning is that it (VC-descriptor) has already been defined; also, target queues are

defined by Nattkemper at the VC-layer, per VC. The reason is that Nattkemper works at the VC layer, otherwise Nattkemper's solution cannot be aware about VC descriptors.

It should further be kept in mind that VC descriptor is a combination of VPI and VCI, where VPI is a sub index of VCI. Therefore, from the VC layer, one can obtain some information about VPI. Therefore, at column 11 line 1, one can see the combination (VCI/VPI) obviously identifying VC-layer.

The Examiner notes that VCI/VPI are evaluated against EPD logic elements (column 11, line 2 of Nattkemper). While this may be true, as Applicant has already discussed and demonstrated - the EPD discard is performed by Nattkemper at the VC layer, for the known VC connection.

Concerning the Examiner's citation of column 7, line 66, where cell statistics gathering is mentioned, Applicant respectfully submits that it is easy to collect cell statistics when the system works at the VC layer (which is exactly the case in the Nattkemper reference). In contrast with that, Applicants do their statistics at the VP-layer, where VC-s are unknown - and it is much more complicated and is not taught by Nattkemper.

All the Examiner's arguments, in particular in the "Response to Arguments" are based on his vision that the present invention and Nattkemper "work" at the same layer of ATM transmission and "perform the same functions".

To be accurate, Nattkemper's system may handle traffic at VP layer where VC connections are unknown, but cannot and does not perform any clever discard at the VP layer.

Contrary to that, the solution of the present application works at the VP-layer where VC connections are unknown, but manages to obtain information about the unknown VC connections at the very VP layer and to build, based on that information, a clever packet discard policy similar to EPD and PPD , which is called the AAL5 discard policy in Applicant's description.

For at least these reasons, Applicant respectfully submits that claims 1-3, 5-7, 9, 10, 12-17, 19-22, 24 and 25 are patentable over the prior art of record whether taken alone or in combination as proposed in the Office Action.

In view of the above amendment and remarks, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections of record. Applicant submits that the application is in condition for allowance and early notice to this effect is most earnestly solicited.

If the Examiner has any questions, he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

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